REMARKS

The Office Action of October 11, 2001 has been received and considered. Claim 1-14 stand rejected. Claims 1 and 9 are amended above. The foregoing amendments in view of the following remarks are believed to place all pending claims of this application in condition for allowance. Accordingly, reconsideration of the application and allowance of claims 1-14 as now submitted is respectfully requested. Each of the Examiner's rejections is discussed below.

Claim 1 is amended above to reinsert the word "coating", which was inadvertently removed in the first amendment. The word provides proper antecedent basis within the claim. Claim 9 has been amended to change its dependency to claim 1 and to remove the limitation of the substantially transparent substrate being substantially planar.

Claims 1, 2, 5, and 10-13 are rejected under § 102(b) over Brown et al (US 5,213,842). The Examiner contends that Brown et al teaches all of the elements of these claims except, the Examiner acknowledges, Brown et al fails to teach application of the substantially transparent, thermostable solar coating by sputtering. The Examiner further contends that a sputtered coating is not a different product from the Brown et al material deposited by pyrolitic deposition. This rejection is respectfully traversed.

The sputtered coating of the claimed thermostable glazing differs significantly from the pyroliticly deposited film of Brown et al. The present specification identifies this fact by

noting, at page 3, lines 12 to page 5, line 10, the deficiencies of current coatings and by teaching a sputtered coating that overcomes those deficiencies. For example, currently available coatings, such Brown et al's coating of pyrolitic copper oxide, lack the ability to withstand the heat and forces of tempering or bending the glazing (page 3, line 17 – page 4, line 5), and prior known coatings would suffer adverse changes in their characteristic solar control optical properties upon exposure to the high temperatures required for bending or tempering. Therefore, such coatings as in Brown et al must be applied after tempering or shaping of the glass substrate (page 3, line 21 – page 4, line 5).

The physical difference between the sputtered coatings of the present invention and prior known materials is seen in U.S. Patent no. 4,715,879 to Schmitte et al, at column 2 lines 44-57. Schmitte et al discusses prior known metal layers, or metal sub-oxidic layers, of the group of metals cobalt, iron, manganese, cadmium, bismuth, copper, gold lead, and nickel, produced by vacuum evaporation. These layers were subsequently subject to thermal treatment in Schmitte et al, between 315°C and 677.5°C. Schmitte et al say that the sunshade effect was "undesirably deteriorated" by the thermal treatment.

In contrast, the sputtered coatings of the present application are disclosed in the specification to maintain their solar properties upon being subject to similar temperatures (page 7, lines 12-21; also, page 14, lines 5-16, noting the ability to withstand tempering and bending while substantially retaining its reflective and refractive properties). Thus, the substrates can be coated, stored in the flat condition, and subsequently tempered and/or bent only as needed.

Additionally, the present specification notes that the sputtered coatings of the claimed glazings have substantially improved coating properties, including especially the ability to form a pin-hole free coating, resulting in longer life and better film quality and durability (page 13, lines 19-22). Further, the high density of the thermostable coatings of the present invention results in long shelf life and excellent durability (page 16, lines 1-4) when compared with available coatings.

It can also be seen in US. Patent no. 4,503,133 to van Lier et al, that sputtering results in a different coating that exhibits marked differences in its properties. Lier et al states at column 2, lines 43-54 that polymeric films formed by sputtering do not generally contain pinholes, whereas films formed by evaporation methods are subject to pinhole formation. That patent further states at column 5, lines 13-15:

> "sputtered coatings differ markedly from coatings of similar composition accomplished by different processes."

Thus it can be seen that, in the present invention, the process of sputtering the coating results in a product with markedly different properties. Applicant is entitled to the Examiner's consideration of the "sputter deposited" limitation to distinguish the claimed invention over the art of record. As the Brown et al patent does not teach a substantially transparent, thermostable solar coating consisting essentially of sputter deposited copper oxide, Brown et al fails to anticipate claim 1 and this rejection should be withdrawn. As claims 2, 5, and 10-13 depend from claim 1, they are allowable as well.

Claims 1 and 3-7 are rejected under § 102(b) over Breininger et al (US 4,170,461). The Examiner contends that Breininger teaches all of the elements of these claims except, the Examiner acknowledges, Breininger et al fails to teach a sputter deposited, substantially transparent, thermostable solar coating. The Examiner contends that a sputter deposited coating is not a different product from the Breininger et al material deposited by wet chemical method. This rejection is respectfully traversed.

The discussion above is incorporated here, that the sputter deposited coating of the present invention is a different product from prior known materials. Specifically, "sputtered coatings differ markedly from coatings of similar composition accomplished by different processes." Therefore, claim 1, and claims 3-7 which depend from claim 1, are patentable over Breininger et al, and the rejection should be withdrawn.

Claims 1-8 are rejected under § 102(e) over Miyauchi et al (US 5,942,331). This rejection is respectfully traversed. The Examiner contends that Miyauchi et al teaches all of the elements of these claims except, the Examiner acknowledges, Miyauchi et al fails to teach a sputter deposited, substantially transparent, thermostable solar coating. The Examiner contends that a sputter deposited coating is not a different product from the coatings of Miyauchi et al which are said to be applied by "spin coating, dip coating, spray coating, ..." The rejection is respectfully traversed.

The discussion above is incorporated here, that the sputter deposited coating of the present invention is a different product from prior known materials. Specifically, "sputtered coatings differ markedly from coatings of similar composition accomplished by different

processes." Therefore, claims 1-8 are patentable over Miyauchi et al, and the rejection should be withdrawn.

Additionally, Miyauchi et al teaches a colored film-coated glass plate. The coating must comprise at a minimum 10% of any combination of silicon oxide, titanium oxide, and iron oxide (column 2, lines 20-25 and 37-40). The coloring metal oxides, which may include cobalt oxide, chromium oxide, copper oxide, manganese oxide, nickel oxide, and iron oxide must fall within the range of 5 to 95% (column 2, lines 52-63); however, there must also be fine coloring particles selected from a list that includes gold, silver, platinum, palladium, cadmium sulfide, and cadmium selenide, and that fine coloring particles must be present in a range of 5 to 30% (column 3, lines 13-22). These requirements effectively limit the copper oxide content of the film to a maximum of 85%, with the remainder of the coating being made up of fine coloring particles and some combination of silicon oxide, titanium oxide, and iron oxide.

Miyauchi et al describes the fine coloring particles as being "necessary to obtain a large selective absorption and coloration in the visible light region" (column 3, lines 15-17), and identifies silicon oxide as a component "necessary to maintain strength of the film" and titanium oxide as "necessary for film formation" (column 2, lines 12-13 and lines 25-27, respectively). Therefore, it cannot be said that these components do not alter the general properties of a film, particularly as relating to the solar properties or the durability properties. Claim 1 of the present application contains the limitation that the coating consists essentially of ... copper oxide. The phrase "consists essentially of" limits the scope of a claim to the specified materials or steps and those that do not materially affect the basic and novel

characteristics of the claimed invention. M.P.E.P. 2111.03. Therefore, Miyauchi et al does not meet the requirement of the rejected claims that the coating "consists essentially of copper oxide." Accordingly, the rejection is improper and should be withdrawn.

Claim 9 is rejected under § 103(a) over Miyauchi et al in view of Kobrehel et al (U.S. 5,915,780). This rejection is respectfully traversed. Neither Miyauchi et al nor Kobrehel et al teach or suggest a sputter deposited coating; more specifically, neither patent, alone or together, teaches or suggests the substantially transparent, thermostable solar coating of the present invention consisting essentially of sputter deposited copper oxide. AS demonstrated above, "sputtered coatings differ markedly from coatings of similar composition accomplished by different processes." Accordingly, the rejection is improper and should be withdrawn.

Claim 14 is rejected under § 103(a) over Brown et al (U.S. 5,213,842). The rejection is respectfully traversed for the reasons set forth above, which are incorporated here. As discussed above, "sputtered coatings differ markedly from coatings of similar composition accomplished by different processes." The non-obviousness of the thermostable glazing of the present invention is further emphasized by the long felt need in the glazing industry for a thermostable solar coating which can be uniformly deposited onto large surface areas with fast deposition rates, low deposition power density, good film quality, including high film durability and long shelf life. Accordingly, Claim 14 is not rendered obvious by Brown et al and the rejection should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, all of the pending claims are believed to be allowable, and an indication to that effect from the Examiner is respectfully requested at this time.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on January 11, 2002:

Rachelle Chery — 1/11/02
Rachelle Chery — *Date*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	**Hülya Demiryont**	**Paper No.:**	
Application No.:	**09/327,594**	**Group Art Unit:**	**1775**
Filed:	**June 8, 1999**	**Examiner:**	**J. McNeil**
Title:	**THERMOSTABLE GLAZING**		

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Assistant Commissioner for Patents
Washington, DC 20231

Response to Office Action - Appendix A

Marked-Up Version Showing Amendments

In the Claims

Claim 1. (Twice Amended) Thermostable glazing comprising a substantially transparent substrate with a substantially transparent, thermostable solar coating on a surface of the substrate, the substantially transparent, thermostable solar coating consisting essentially of sputter deposited copper oxide.

Claim 9. (Amended) The thermostable glazing according to claim 1, wherein the substantially transparent substrate is curvo planar, body colored soda-lime-silica glass [~~8, wherein said substrate is curvo planar~~] .